

AUSTRALIAN CHARACEÆ WHICH SURVIVED THE ARMIDALE FIRE

by

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Introduction

On 23rd February, 1958, a fire swept through the botanical laboratories of the University of New England, Armidale, New South Wales, Australia, destroying the valuable herbarium. Among the collections were the assembled specimens of *Characeæ* from Australian herbaria on loan to the junior author (née Mary Beth Macdonald) then engaged in monographic work for her dissertation. Of greatest value was the group from the Royal Botanic Gardens and National Herbarium, Melbourne, which included the collections of Ferdinand von Mueller and other early botanists; while a number of important sheets, especially Gunn's specimens, were from the Royal Botanic Gardens and National Herbarium, Sydney. The collection from the Botanic Museum and Herbarium of Queensland, Brisbane, on which J. Groves and Allen's (1935) report was based, was not in Armidale at the time, and is completely intact. By a strange coincidence, the fire burnt away the floor, and the cabinet on which the entire pile of *Characeæ* had been lying was tipped over into water accumulating from the fire hoses. A colleague entered the gutted building shortly after the blaze was controlled, and, finding the pile of *Characeæ* only moderately disassembled, brought the wet heap out en masse. The junior author separated and dried the papers and specimens to prevent fungal damage, and assembled parts of specimens to avoid further loss by misplacement. The pile of folders had been seriously burnt on the outside, but the centre portions of many sheets were untouched so that a considerable portion of the specimens survived. The labels remained intact in many cases, but some had become unpasted and were misplaced or lost, while others were more or less completely burnt. Annotations which had been done with the ballpoint pen frequently had run, become bleached, or had even become transferred to adjacent paper, revealing apparently serious defects of this type of ink. Pencil-written labels and those done with India ink were, on the other hand, quite legible. The junior author undertook to reunite labels and specimens and to record as much of the data as could be gleaned from the more severely burnt labels. Unfortunately, her records and study notes, which would have been invaluable in this effort, were also lost in the fire. The senior writer visited Armidale in November, 1960, and the entire collection was gone over cooperatively. All available data were typed in duplicate, and all clues used

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to ensure accuracy in reuniting labels and specimens. The data were then assembled into the following list which was subsequently checked by both authors.

A rough check on the nature of the loss as a result of the fire can be made by comparing this list of surviving specimens with a list of specimens expected to be present on the basis of the literature. Among the missing items are the specimens of *Chara submollusca*, *Nitella myriotricha*, *N. pseudoflabellata* and *N. hookeri*, collections of Tepper (Adelaide area), Robertson (Wimmera area), and most of those by Drummond and by Preiss (Western Australia). It would appear that somewhat more than two-thirds of the records may have survived. In addition, the junior author's entire personal collection was destroyed; whereas, the Queensland specimens, as mentioned above, were not in Armidale, and thus were untouched.

The assembled Australian collections of *Characeae* have become of potential critical taxonomic importance. The majority of new species from Australia were described by Alexander Braun in 1849 and 1852 from the early collections of Ferdinand Mueller, Stuart, Preiss, Gunn, and Drummond; but his entire collection, which included the original specimens of these species, was destroyed at Berlin-Dahlem in World War II. The senior writer sought original material in European herbaria in 1956; and, although able to locate some isotypes at Kew, Lund, and Stockholm, no duplicates of a number of the original specimens could be found. He undertook to check the Australian herbaria in the hope of locating some originals, but was informed that most collections and all of the Melbourne specimens were lost in the Armidale fire. On visiting Australia, however, it was learned that the junior writer was engaged in the chore of salvaging some specimens which had survived. It was at this time that the writers pooled their efforts and knowledge to complete the labels, prepare this report, and facilitate the return of the specimens. Some of the specimens are doubtless isotypes, and some may prove to be the only examples extant.

The specimens are listed serially by number and grouped alphabetically according to the name which appeared on the label, and do not necessarily agree with current usage. Unnamed plants are listed after the named collections in each genus. For each collection, the data, where available, include the collector's name and number, date of collection, locality, a statement on condition of specimen, notes on the labels and annotations, and occasional remarks. Varieties and forms are not listed as main headings, but rather are included with notes on the specimens. Such infraspecific taxa are grouped alphabetically toward the end of the series of named specimens within each species. Original collection data are quoted verbatim, and the liberty was taken of translating certain passages which were in foreign languages. Information missing from the surviving label is reinserted, where obtainable; but such inserted data are set off by brackets to indicate they are the authors' opinions. Many gaps were easily

reconstructed from data on labels of other duplicates or of collections made at about the same time. For revisions in nomenclature, the reader is referred to Wood (1952). Cross references are made by the number assigned to each entry. Abbreviations used include "c." = approximately (circa); "Coll.?" = collector when the name is unknown; "spec." = specimen; "No." = number; "(MEL)" = National Herbarium of Victoria, Melbourne; "(NSW)" = National Herbarium of New South Wales, Sydney; compass points are used without punctuation (e.g., N, S, E, and W) unless quoted; mbw = Mary B. Williams and rdw = R. D. Wood. Abbreviations for the labels used by the Melbourne herbarium include Ferdinand Mueller's "Phyt. Mus. Melb." for Phytological Museum of Melbourne, "Bot. Mus. Melb." for Botanical Museum, Melbourne, and "Nat. Herb. Vict." for National Herbarium of Victoria, all of which are now referable to the National Herbarium of Victoria (MEL). The term "unicum" seems to have been used to indicate cases where only one sheet was thought to exist, although a number of exceptions were found. Mueller's name was abbreviated in numerous ways, such as "ferdmull.," "Dr. M.," "Mll.," "Ferd. Mull.," "F. v. M.," "F. v. Mull.," "F. Mueller," and "F. v. Muller"; and in the present list the name of Mueller has been spelled out by insertion of the necessary letters enclosed in brackets. Most of the specimens on loan from the Sydney Herbarium were labelled "W. H. Archer's Herbarium of Tasmanian Plants," were collected by R. C. Gunn, and were marked "Ex HERB. HOOK." Reference is occasionally made to the junior author's annotations, mostly dated 1955 and signed as "M. B. Macdonald."

The writers are indebted to many associates who have helped in locating collection sites from the brief available data, especially to the following: J. H. Willis, Assistant Government Botanist, National Herbarium, Melbourne; S. L. Everist, Government Botanist, Botanic Museum and Herbarium, Brisbane; Miss C. M. Eardley and Dr. H. B. S. Womersley, Department of Botany, University of Adelaide.

Enumeration

CHARA AUSTRALIS R. Br.

- (1) Coll.? Feb. 1853. In lagoons on the Honeysuckle Creek. [Doubtless *Ferdinand Mueller*, in Broken River, Benalla, Victoria (see Zaneveld, 1940:125, footnote 3)] (MEL)—spec.: singed, but intact; annotated by Macdonald, 1955, as "*var. nobilis*."
- (2) Coll.? Jan. 1853. In lacunis ad Yarra flumen [doubtless *Ferdinand Mueller*, in Yarra R., Melbourne, Victoria] (MEL)—spec.: intact; annotated by Macdonald, 1955, as "*var. nobilis*." Note: mixed with *Nitella* sp.
- (3) Mrs. Martha Heal. 1890. Interior of West Australia (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "*a nobilis*," and annotated by Macdonald as "very like the type for *P. [rotochara] australis*, and seems likewise to lack bracts".

- (4) *J. Cameron*. 1891. Snowy River. [at or near Orbost, Victoria] (MEL) —spec.: intact; labelled Phyt. Mus. Melb. as "*a nobilis*."

CHARA BATRACHIOIDES F. Muell.—(see No. 29, 32, 34)

CHARA BEHRIANA F. Muell.—(see No. 7)

CHARA CONTRARIA A. Br. ex Kütz.

- (5) *Phillip Bracebridge Wilson*. Oct. 13, 1883. Gannon [doubtless Yarram] Creek [vicinity of Queenscliff, Victoria] (MEL) —spec.: intact, with *Tolypella glomerata*; annotated as "*C. contraria*, verisimili v. *australis*, sporis immaturis" by Nordstedt. See also No. 31.
- (6) *Ferd. Mueller* 5. Oct. [18] 51. —> Cudnaka [now Kanyaka, between Willochra and Hawker, South Australia] (MEL) —spec.: only fragments in cellophane packet; annotated "*var. australis*" by Mueller.
- (7) *Dr. Mueller*. date ? In fonte vallis subsalsi, Salts gully with [?], prope Bethanien [Bethany near Tanunda, South Australia] (MEL) —spec.: intact; annotated as "*var. Behriana* Ferd. Mueller; unicum", and also as "*Chara Behriana* Ferd. Mueller."

CHARA DICHOPITYS A. Br.—(see also *C. preissii*, *C. hookeri* and *C. microphylla*)

- (8) *Dr. M[ueller]*. Jan. 1853. Darebin Creek, west Port Phillip [vicinity of Melbourne, Victoria] (MEL) —spec.: intact. Note: with *C. fragilis*.
- (9) *Coll.?* 4. date? Portland [doubtless *Ch. Stuart*, 1848, Portland, in the Georgetown region, near mouth of Tamar River, Tasmania; see spec. No. 38 and 44] (MEL) —spec.: tiny fragment; labelled Bot. Mus. Melb. as "*C. Hookeri*, unicum." See also No. 38 and 44.
- (10) *W. Fitzgerald*. 1893. Tasmania (MEL) —spec.: intact; labelled as "*a Preissii*."
- (11) *Coll.?* date ? Murray River [SE Australia, but where on the river?] (MEL) —spec.: tiny piece; label missing, only Nordstedt's annotation as "*a Preissii*."
- (12) *Coll.?* 1875. Mount Emu Creek. [*Ferdinand Mueller*, Mar.-Apr. 1875, Western Volcanic Plains, Victoria] (MEL) —spec.: 2 small scraps; labelled Phyt. Mus. Melb., label half burnt.

CHARA FRAGILIS Desv.

- (13) *Coll.?* Jan. 1853. In the Darebin Creek [doubtless *Ferdinand Mueller*, vicinity of Melbourne, Victoria] (MEL) —spec.: intact; label singed.

- (14) *Coll.*? Jan. 1853. In the Darebin Creek [doubtless duplicate of No. 13; *Ferdinand Mueller*, vicinity of Melbourne, Victoria] (MEL) — spec.: intact. Note: mixture of two species, probably *C. gymnopitys* and *C. fragilis* — mbw.
- (15) *Coll.*? date? Near Station Peak [doubtless *J. P. Fullagar*, 1865-68. You Yangs N from Geelong, Victoria] (MEL) — spec.: intact; label singed. Note: mixed with *Nitella lhotzkyi*; possibly 1854 — see No. 59 and 65.
- (16) *Coll.*? [*Ferdinand Mueller*?] 51. Jan. 28, 1848. locality? [in German script, not yet translated, but near Adelaide, South Australia, since Mueller was at Holdfast Bay on Jan. 31, 1848] (MEL) — spec.: intact; labelled as “var. *laxa*” apparently by Mueller.
- (17) *W. Woolls*. date? Nepean River [vicinity of Sydney, New South Wales] (MEL) — spec.: 2 tiny scraps; labelled Bot. Mus. Melb., as “*unicum*.”
- (18) *F. M. Reader*. date? locality? (MEL) — spec.: partly burnt; label half burnt. Note: mixture of 2 *Charas* and a *Nitella* — rdw.

CHARA GYMNOPITYS A. Br.

- (19) *Leary*. 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL) — spec.: intact; annotated as “junior” by Nordstedt.
- (20) *W. H. Cusack* 18 [18]95. Harding River. N. W. Australia [At Port Walcott, Western Australia] (MEL) — spec.: one small plant; labelled Phyt. Mus. Melb. as “*Chara gymnopitys* a f. *aequistriata micracantha microteles microptila laxa inferne* . . .” doubtless from Nordstedt’s information.
- (21) *El. Leary* 2. 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL) — spec.: one plant in packet.
- (22) *Coll.*? date? locality? (MEL) — spec.: intact; label uncertain, two are available and it is uncertain which belongs to the specimen. It might be No. 585.
- (23) *Rev. Dr. Woolls*. date? Par[r]amatta [vicinity of Sydney, New South Wales] (MEL) — spec.: lost; labelled Phyt. Mus. Melb. as “*unicum*.”
- (24) *Nyulasy*. 1888. Ord River [NE Western Australia] (MEL) — spec.: intact; packet half burnt; annotated “*sporis immaturens*.”
- (25) *Th. Weir*. 1888. Shoalhaven River [SE New South Wales] (MEL) — spec.: intact; labelled Phyt. Mus. Melb.; annotated “3. *Chara gymnopitys*. 1 have only met with

one little clump of this plant, it is submerged, growing in rapid running water . . . *Ch. gymnopitys sterilis*," and on the packet is annotated "Die grössere Chara = *Ch. gymnopitys*, die verworrene = *Nitella interrupta*. Wohl auch aus Schoalhaven River?"

- (26) Coll. ? 562 [572 ?]. date ? [probably *Ch. Stuart* at South Esk R., Tasmania] (MEL) —spec.: intact; labelled Phyt. Mus. Melb. as "*Chara macropogon* probably from Stuart or Oldfield" [in light ink] and "probably Tasmania, *Ch. Stuart*" in Mueller's heavy ink. Nordstedt annotated "*Chara gymnopithys* A. Br., major caudata sporis immaturis, sed verisimiliter ad var. *acanthopithys persitenens* [spelling ?]. Unicum."
- (27) *C. Weldon Birch*. 1892. Tate River, N.E. Australia [WNW of Cairns, Queensland, see No. 143] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "f. *aequistriata laxior gracilor* . . ."
- (28) *Ch. Stuart* 219. date ? Moreton Bay [vicinity of Brisbane, Queensland, probably Feb. 1858, see No. 35] (MEL)—spec.: one plant; labelled with two distinct scripts, and a German annotation not legible to me—rdw.
- (29) Coll.? 583. April [year?, probably 1849]. Stagnant water in South Esk River [Tasmania, probably by *Stuart*] (MEL)—spec.: intact; annotated "*Ch. batrachioides* Ferd. Mueller" probably by Mueller.
- (30) *D. Boyle*. date ? [between 1865 and 1872]. Blackburn Creek near Port Phillip [vicinity of Blackburn, an eastern suburb of Melbourne, Victoria] (MEL)—spec.: intact, huge material with branchlets to 2 cm. long; labelled Phyt. Mus. Melb. with text in pencil overwritten with ink, and not clear, also as "unicum".
- (31) Coll.? Oct., 3, [18] 83. Lass[o?]m Creek [doubtless Yarram Creek, vicinity of Queenscliff, Victoria] [probably by *Bracebridge Wilson*, who collected *C. contraria* (No. 5) and *T. glomerata* (No. 5) in the same vicinity] (MEL)—spec.: intact; annotated "sterilis (spor junior) f. *aquistriata valde crassa*" by Nordstedt, as "unicum".
- (32) *Dr. M[ueller]*. April, 1848. Haud procul a lacu Victoriae in aquis pigris [i.e., not far from Lake Victoria in sluggish water, near mouth of Murray River, South Australia] (MEL)—spec.: a few small examples; labelled "*Ch. batrachioides* Ferd. Muell." by Mueller[?]. Note: A number of specimens and papers labelled "*C. batrachioides*" assembled, and marked "A"—rdw; for date, see No. 55.

- (33) *A. Oldfield* 9. date ? [March, 1859]. In the South Hutt River, [Western Australia] (MEL)—spec.: 2 fairly large pieces; labelled Phyt. Mus. Melb. as "unicum"; annotated "f. *aquistriata micracantha precaudata* 1 cetera [?] *macroptila* vel *microptila* 1. *meioptila*" by Nordstedt.
- (34) *C. Wilhelmi*. Dec., [18]57 [possibly 51?]. In aquis stagnantibus plagai Devils Country [?] N. Holl. austr. [South Australia] (MEL)—spec.: intact; annotated "*Chara batrachioides* Ferd. Muell." by Mueller.
- (35) *Ch. Stuart* 220. Feb., 1858. Stagnant water. Enoggera, Moreton Bay [vicinity of Brisbane, Queensland] (MEL)—spec.: intact.
- (36) *Ferd. Muell[er]*. Feb., [18]50. locality? [probably near Adelaide, South Australia] (MEL)—spec.: not definite (2 questionable specimens and 3 labels); labelled "f. *brachyphylla*", and as "*Chara subtilis* Ferd. Mull." by Mueller.
- (37) *Stuart*. date ? Tasmania (MEL)—spec.: not definite (2 questionable specimens and labels); labelled "f. *major*."

CHARA GYMNOPUS* A. Br.

- (37A) *W. H. Cusack*. 1895. Harding River, N.W. Australia [at Port Walcott, Western Australia] (MEL)—spec.: small fragment enclosed in folded label, intact; labelled Phyt. Mus. Melb. as "*C. gymnopus** A. Br. (fortasse nov. var.)."

CHARA HOOKERI A. Br.—(see also *C. dichopitys*)

- (38) *Coll. ? 4.* date ? Tasmania [doubtless *Ch. Stuart*, 1848. Portland in the Georgetown region near mouth of the Tamar R.] (MEL)—spec.: intact; see also No. 9, which gives "Portland", and No. 44.

CHARA INCONSPICUA F. Muell.—(see No. 55).

CHARA LEPTOPITYS A. Br.

- (39) *F. Mueller*. April, 1875. Mount Emu Creek [Western Volcanic Plains, Victoria] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "unicum". Note: not typical material—rdw.
- (40) *C. Walter*. Oct., 1888. Tattiara country [near Bordertown, South Australia] (MEL)—spec.: intact tiny plants; determined by Nordstedt.

CHARA LEPTOSPERMA A. Br.

* Possibly written "*Gymnopitys*", not clearly legible—rdw.

- (41) *E. Palmer* 152. date ? [probably c. 1882]. Mitchell River [N Queensland] (MEL—spec.: intact; labelled Phyt. Mus. Melb. as “grows in still fresh water, floating underneath surface in shallow pools, very common in all Mitchell waters” by Palmer; annotated as “doubtful” by Nordstedt.

- (42) *Coll?* [doubtless *C. W. Nyulasy*]. 1888. Ord River [NE Western Australia] (MEL)—spec.: badly burnt; label half burnt.

CHARA MACROPOGON A. Br.—(see *Lamprothamnium macropogon*)

CHARA MICROPHYLLA F., Muell. ex Kütz.—(see also *C. dichopitys* and *C. hookeri*)

- (43) *St[uart]* 558. Feb., 1849. In fluvio South Esk. Tasm[ania] (MEL)—spec.: parts are intact; annotated as “*Chara Hookeri* A. Braun”.

- (44) *Ch. Stuart* 4. 1848. Tasmania (MEL)—spec.: intact; label burnt (see No. 9 which indicates “Portland”, also No. 38).

CHARA MUELLERI A. Br.—(See also *C. scoparia*)

- (45) *F. M. Reader*. date ? locality ? [possibly New South Wales] (MEL)—spec.: intact; label burnt. Note: mixture of two Charas—mbw.

CHARA MYRIOPHYLLA F. Muell. ex A. Br.

- (46) *C. Stuart* 581 [587?]. April, 1849. South Esk River [Tasmania] (MEL)—spec.: 2 fragments mixed with another species of *Chara*; labelled “This *Chara* is a very rare one unlike [others of its] family it does not appear in masses, but singly and at a distance—not from the bottom of the river, but from the banks at the side” by Stuart.

- (47) *Coll?* 562. Feb. [1849]. In South Esk River [Tasmania] [doubtless *C. Stuart*, Feb., 1849, see No. 46 and 62] (MEL)—spec.: one small piece; label consists merely of notes on card. Note: for date, see No. 62.

- (48) *Coll?* date ? Tasmania [doubtless *C. Stuart*, see No. 44] (MEL)—spec.: 4 pieces of which one is a large, fine example.

CHARA PREISSII A. Br.—(see also *C. dichopitys*)

- (49) *F. M. Reader*. Jan., 12, 1902. In “Whitton Swamp” [Lake near Warracknabeal, Victoria] (MEL)—spec.: intact, large and fine specimen; label half burnt.

- (50) *L. Preiss.* Feb., 1839. In alveo coenosa† fluminis "Avon" terrae superioris, ab aboriginibus "Berrelangin" dictae [i.e., a boggy shallow place on high ground of the River Avon at the place called "Berrelangin" by the aborigines] Western Australia (MEL)—spec.: 3–4 small pieces.
- (51) *Ferd. Mueller.* 1853. Darebin Creek [vicinity of Melbourne, Victoria] (MEL)—spec.: 2 rather dissimilar pieces, one of which more closely resembles No. 50, and might have been mixed during reassembly after the fire.
- (52) *Dr. Ferd. Mueller.* [18]59 [probably 1853]. Golgol, Austr. felix [Gol Gol, near Mildura, SW New South Wales] (MEL)—spec.: intact; labelled as "*f. major polyphylla*" presumably by Mueller.

CHARA PSILOPITYS A. Br. ex Nordst.

- (53) *A. T. Vogan.* 1889. Mulligan River [near border of SW Queensland] (MEL)—spec.: several pieces; labelled "*β Drummondii*. Spores matura non visa" possibly by Nordstedt.

CHARA SCOPARIA Chev.—(see also *C. muelleri*)

- (54) *El. Leary.* 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL)—spec.: only a few scorched fragments survived; labelled Phyt. Mus. Melb. and annotated "*β Muelleri*" by Nordstedt.
- (55) *Dr. F. Mu[eller].* April 28, 1848. In aquis quiet non finoral a lacu Victorian [not legible] [near mouth of Murray River, South Australia] (MEL)—spec.: intact; labelled "*var. Muelleri*", annotated "*C. inconspicua* Ferd. Mull." by Mueller.

CHARA SUBTILIS F. Muell.—(see No. 36)

CHARA SUCCINCTA A. Br. in Asch.

- (56) *R. Helms.* May 5, 1891. Kootanoorinna, South Austr. [= Cootanoorina Station (fide Burbidge, 1950: 11), north central South Australia, c. 28° S. lat., c. 136° E. long.] (MEL)—spec.: intact; labelled Phyt. Mus. Melb.

CHARA sp.

- (57) *Coll.?* Summer, 1865. Bason of the Cataract at.... [rest obscure] (MEL)—spec.: intact. Note: is *C. australis*, and possibly 1st Basin, Launceston, Tasmania—rdw.

† Not clearly written; possibly "*Aqua subsalsa*"—rdw.

- (58) Coll.? date? Golgol [Gol Gol, near Mildura, SW New South Wales; probably *Ferdinand Mueller*, Dec. 1853] (MEL)—spec.: intact, excellent; annotated as “monoeious” by ?.
- (59) Coll.? 52. 1854. Near Station Peak [vicinity of Geelong, Victoria] (MEL)—spec.: lost; label half missing. See No. 65 for locality, and possible duplicate.
- (60) Coll.? date ? locality ? (MEL)—spec.: intact; label singed and Macdonald’s annotation destroyed. Note: apparently mixture of *C. globularis* and *C. gymnopitys*—rdw.
- (61) Coll.? 50. date? Murray River, Swan Hill [NW Victoria] (MEL)—spec.: lost; label half burnt.
- (62) *Ch. Stuart* 562. Feb., [18]49. In fluvio South Esk River [Tasmania] (MEL)—spec.: intact; label partly burnt. See No. 47 for duplicate.
- (63) *Miss Warburton*. 1896. Gordon River, W.A. [Western Australia] (MEL)—spec.: one scorched plant; label half destroyed.
- (64) [J.] *Bracebridge* [Wilson]. Oct. 10, [18]8[3]. *Coryule* [?] [doubtless Corio Bay, vicinity of Geelong, Victoria] (MEL)—spec.: intact; label destroyed. See No. 5 for missing data. Note: *C. globularis*?—rdw.

LAMPROTHAMNIUM MACROPOGON (A. Br.) Ophel (commonly treated as *Chara macropogon*)

- (65) *Dr. M[ueller]* 52. date ? In aquis subsalsis prope Station-Peak, near Port Phillip [vicinity of Geelong, Victoria] (MEL)—spec.: intact; labelled as *Chara macropogon*. Note: No. 59 suggests this was collected in 1854; possibly a duplicate.
- (66) *J. Drummond*. date ? W.A. [Western Australia] (MEL)—spec.: intact; labelled Bot. Mus. Melb. as “unicum.” Note: rather stout, perhaps mixed.

LAMPROTHANIUM sp.

- (67) Coll.? 148. 1854. In Sermvion Vellijoule. Ves . . . Cove [not legible] [locality?] (MEL)—spec.: badly scorched; label badly bleached and burnt.

NITELLA ACUMINATA A. Br. ex Kütz.

- (68) *Ch. W. Birch*. 1892. White Water, near Mt. Albion, N.E. Austr. [N Queensland, see No. 143] (MEL)—spec.: one tiny specimen in small pack.
- (69) *W. Persieh* 5. 1887. Endeavour River [near Cooktown, Queensland] (MEL)—spec.: small wad; labelled Phyt. Mus. Melb. as “ β subglomerata”.

NITELLA AEMULA A. Br.

- (70) *Dr. F. M[ueller]* 2. April 28, 1848. In aquis stagnantibus in vicinis montis Barkeri [i.e., in stagnant water in vicinity of Mount Barker, South Australia] (MEL)—spec.: intact. Note: bicellulate.

NITELLA BIFORMIS A. Br.

- (71) *Coll.*? 426. date ? Yantara Lake [doubtless by W. Bäuerlen, Oct.–Nov., 1887. Far NW New South Wales] (MEL)—spec.: tiny scraps; labelled “*Nitella conglobata* β *biformis*, female sporis immatures”. Note: resembles *N. tenuissima* in appearance.

NITELLA CONGESTA (R. Br.) A. Br.

- (72) *Coll.*? date ? Lake Leven [locality?] [possibly on Leven R. in N Tasmania] (MEL)—spec.: lost, of the two found in the folder after the fire one was *C. australis* from Cataract, 1865 (see No. 57) and the other Leichhardt’s *Nitella* of Nov. 25, 1843 (see No. 149).

NITELLA CONGLOBATA A. Br.—(see also *N. lhotzkyi*)

- (73) *Lewis*. date ? Goulbourne River [apparently Victoria rather than New South Wales, based on No. 136] (MEL)—spec.: intact; labelled Phyt. Mus. Melb.
- (74) *F. v. M[ueller]*. 1853. Lake Colac [Victoria] (MEL)—spec.: fair, wadded; labelled Phyt. Mus. Melb. as “*Chara—Nitella conglobata* α *Lhotzkii* (= *lhotzkyi*) female” as “*unicum*”; annotated “*Nitella conglobata*” in different script. Ref.: Nordstedt, 1888: 12.
- (75) *Oldfield*. date ? [March, 1859]. Moore’s River [= Moore River] West[ern] Australia [c. 50 miles north of Perth] (MEL)—spec.: only a few fragments; label largely lost, a remaining bit shows “. . .ae Dr. M. 502” but also labelled Phyt. Mus. Melb. as “*unicum*” and as “var. *Lhotzkyi*” probably by Mueller.
- (76) *W. D. Cusack*. 1895. Harding River, N.W. Australia [at Port Walcott, Western Australia] (MEL)—spec.: lost; labelled Phyt. Mus. Melb. as “var. *Lhotzkyi*” in small script in black ink.
- (77) *Dn. Sullivan* 37. 1893. Lake Buningong, Kira [?, doubtless = River] Hopkins [possibly L. Bunijong, c. 20 miles SW of Ararat, Victoria, near Hopkins River] (MEL)—spec.: a few fragments; labelled with 3 different scripts, as “ α *Lhotzkyi*”.

NITELLA CRISTATA A. Br.—(see Williams, 1959)

- (78) *Rev. J. Bufton*. date ? [c. 1893]. Port Arthur, Tasm[ania] (MEL)—spec.: intact; labelled Phyt. Mus. Melb.

- (79) *Rev. Dr. Woolls.* date ? Par[r]amatta [suburb of Sydney, New South Wales] (MEL)—spec.: lost; labelled Phyt. Mus. Melb.; annotated by Macdonald, 1955, as “branchlets 2-furcate, dactyls mostly 3-celled. 3 unripe oogonia which are clustered at both branchlet furcations, fertile whorls somewhat contracted”. Also sketches are included.
- (80) *C. T. Musson* 579 [575?]. date ? Swamp Creek, Hanging Rock Ninole [spelling?] N[ew] S[outh] W[ales] (about 3,500 feet above sea) (MEL)—spec.: intact; labelled in script unknown to writers, probably Musson’s.
- (81) *Ch. Stuart* 5. [1848]. Tasmania (MEL)—spec.: intact, sterile; labelled Phyt. Mus. Melb.
- (82) *Coll.?* [Stuart] 219. Dec. 25, 1848. Stagnant water, near South Esk River [Tasmania] (MEL)—spec.: intact.
- (83) *Coll.?* [Stuart]. Dec., [18]48. South Esk [River] at Perth, [Tasmania] (MEL)—spec.: one intact, plus scorched fragments, label is torn; annotated by Macdonald, 1955, as “male and female, fertile. Fertile whorls contracted, no mucus, oospore 320–330 μ [long], 5 prominent spirals, membrane granulate and warty (not clear)”.
- (84) *Coll.?* [Stuart] 217 [214?]. Dec. 25 [23?], [1848]. Running stream, South Esk River [Tasmania] (MEL)—spec.: poor material, intact; annotated by Macdonald as “looks like a *C. australis*, sterile”.
- (85) *Coll.?* [Stuart] 788. [1848]. South Esk River [Tasmania] (MEL)—spec.: intact; annotated by Macdonald as “*N. breviteles?*”.
- (86) *Wilcox.* Nov., 1878. Clarence River, NE coast N.S.W. [New South Wales] (MEL)—spec.: destroyed; labelled “Schlechter ex [ample] vielleicht *Nitella cristata* male oder eine nahe stehende species” [i.e., poor example, perhaps male *N. cristata* or a similar species—Nordstedt].
- (87) *Coll.?* date ? locality ? (MEL)—spec.: some parts not destroyed; label largely burnt, the legible parts appearing to read “[*Ch*]ara *australis*.... out mis jud.... *cristata* Al. Br.”.
- (88) *Ch. Stuart.* date ? Tasmaniae (MEL)—spec.: lost; labelled Phyt. Mus. Melb. as “unicum.... stagnant water....”
Note: both fit *Stuart* 219, except that it was not a solitary specimen (unicum).
- (89) *Miss W. J. Smith.* 1892. Murray River [where along river?] (MEL)—spec.: scorched badly.

- (90) *Leary*. 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL)—spec.: intact, includes four, three of which Macdonald numbered 2, 3, and 4; labelled by Nordstedt; annotated "brachyteles" on some labels, and includes Macdonald's study data.
- (91) *Ch. Stuart*. date ? Moreton Bay [vicinity of Brisbane, Queensland] (MEL)—spec.: a few fragments; labelled Phyt. Mus. Melb. as "verisimiliter (sterilis!)" by Nordstedt (?).
- (92) *R. Helms*. Nov. 17, 1891. In dam. Karoling, Western Australia [now Karalee, c. 119° E. long., 31° S. lat.—fide Burbidge, 1950: 137] (MEL)—spec.: intact; labelled with field notes, and Phyt. Mus. Melb. label.
- (93) *F. v. M[ueller]*. Oct, 1875. Edwards River [near Deniliquin, SW New South Wales] (MEL)—spec.: intact; labelled Phyt. Mus. Melb., marked "unicum", torn.
- (94) *Ch. Stuart* 751. date ? [Nov., 1848]. St. Paul's River, Tasm[ania] (MEL)—spec.: intact; annotated with Macdonald's study data.

NITELLA DIFFUSA A. Br.—(see Williams, 1959)

- (95) *Ch. Stuart*. date ? New England [NE New South Wales] (MEL)—spec.: badly scorched, but fertile parts intact; annotated with Macdonald's study data.
- (96) *Coll?* date ? locality ? (MEL)—spec.: intact; labelled as "*Nitella* sp. ad *N. diffusa* accedens" by Nordstedt, and as "unicum"; annotated with Macdonald's study data.
- (97) *Coll?* date ? N[ew] S[outh] Wales. (MEL)—spec.: one suitable specimen survived; labelled Phyt. Mus. Melb. as "unicum"; annotated with Macdonald's study data.
- (98) *Leary* 5. 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL)—spec.: a few parts survived, enough for study; annotated with Macdonald's data and sketches.
- (99) *Coll?* date ? locality ? (MEL)—spec.: a few fragments suitable for study, with two slides of the granulate oospore membrane; labelled by Nordstedt; annotated with Macdonald's study data.
- (100) *Reader*. date ? Near Dimboola [, Victoria] (MEL)—spec.: intact; label badly burnt; annotated "looks like *N. ge'atinosa*" by Macdonald.
- (101) *Reader*. date ? locality ? (MEL)—spec.: intact; label burnt.

NITELLA GELATINOSA A. Br.

- (102) *Stuart* 560. Jan., [18]49. Charae . . . boggy water near Mersey River [N central Tasmania] (MEL)—spec.: intact. Ref.: Nordstedt, 1889; 13, as “ad podostachyam accedens”.
- (103) Coll.? [*Stuart*] 1027. date ? locality ? [South Esk River, Launceston, Tasmania] (MEL)—spec.: intact; labels uncertain. Note: of the two labels, neither seems to fit, one states “South Esk River, Jan., 49” (date as in No. 102) and the other states “var. *cryptostachya*. Mersey. Tasmania. C. Stuart 559” (as in No. 111). For data for 1027, see No. 113.
- (104) *Ch. Stuart* 582. date ? Aquis fluentibus ad Fl. South Esk River [Tasmania] (MEL)—spec.: lower parts survived; labelled with some German script not yet translated.
- (105) *Dr. Mueller*. Oct., [18]52. In fossis ad flumen Yarra [in ditch near the Yarra River, vicinity of Melbourne, Victoria] (MEL)—spec.: intact; labelled on sheet, and accompanied by letter from A. Braun, 1853, which is half burnt.
- (106) *Dr. Mueller*. date ? Capaspe River [Campaspe R., W Victoria] (MEL)—spec.: several loose, stringy plants.
- (107) Coll.? date ? locality ? (MEL)—spec.: intact; labelled with two labels, one with “21. Is that in fruit, or is it the ova of frogs? Fruit! *Nitella gelatinosa*”, while the other is Nordstedt’s annotation.
- (108) *F. M. Reader*. Nov. 7, 1893. In a pool W. of river [Wimmera R.] near Dimboola [Victoria] (MEL)—spec.: intact.
- (109) *F. M. Reader*. Nov. 11, 1900. In a spring, Lochiel [near Dimboola, W Victoria] (MEL)—spec.: intact.
- (110) *Ferd. Mueller*. Jan., [18]47 [must be 48]. In fluvis Torrens, Nov. Holl Austr. [vicinity of Adelaide, South Australia] (MEL)—spec.: intact, small; labelled as “var. *cladostachya*” [by whom?]. Note: this may actually be specimen *Dr. F. Mueller* 501.
- (111) *C. Stuart* 559. date ? [Jan., 1849, see No. 102]. Boggy waters, Mersey River, Tasmania (MEL)—spec.: intact; labelled as “var. *cryptostachya* A. Br.” [by whom?], and Phyt. Mus. Melb. as “*Chara gelatinosa* var. *cryptostachya*”.
- (112) Coll.? [*C. Stuart*] 752. Nov., 1848. Brookhead [= at head of brook?] St. Paul’s River, [Tasmania] (MEL)—spec.: intact with two duplicates; labelled as “var. *microcephala*” [by whom?].

- (113) *Stuart* 1027. date ? South Esk River, Launceston, Tasmaniae (MEL)—spec.: intact; labelled “f. *opaca*” [by whom?]. Note: two specimens marked 1027, the one as “unicum” provides the data.
- (114) *Coll.*? [*Ch. Stuart*]. Jan., [18]49. Mersey River [Tasmania] (MEL)—spec.: two unburnt; labelled “var. *podostachya*”. Note: other specimens collected about same time are No. 102 and 111.

NITELLA GLOEOSTACHYS A. Br.

- (115) *F. M. Reader*. Nov. 28, 1894. In a spring, Lochiel [near Dimboola, W Victoria] (MEL)—spec.: intact.

NITELLA GUNNII A. Br. ex Nordst.

- (116) *Coll.*? [*Ch. Stuart*] 1025. Dec., [18]49. Stagnant water, W. [of?] Deloraine, [Tasmania] (MEL)—spec.: intact; labelled merely as “*Nitella Gunnii*”, but Braun (1852: 704) treats as var. *fastigiata*.
- (117) *Coll.*? [doubtless *Stuart*]. date ? South Esk River, Launceston [Tasmania] (MEL)—spec.: intact, plus four parts in a scorched cellophane packet.
- (118) *D. Sullivan*. Feb., 1881. Moyston near the Grampians, [W central Victoria] (MEL)—spec.: intact, but incomplete; labelled as “*β fastigiata*” in script presumably Nordstedt’s while two other scripts state “Moyston . . .” (Sullivan’s?) and “near the Grampians . . .” (Mueller’s). Note: specimen is large and coarse, quite unlike No. 116 and 117, and mixed with *Chara*.

NITELLA HYALINA (DC.) Ag.

- (119) *E. Palmer* 54. date ? [1882]. Found in shallow water near Mount Bromsprings [= Goodsprings ?], Flinders River [N central Queensland, near Gulf of Carpentaria] (MEL)—spec.: three pieces; label seems to refer to a phanerogam rather than to a Charad.
- (120) *E. Leary* 10. 1892. Port Jackson [vicinity of Sydney, New South Wales] (MEL)—spec.: intact; labelled only with Nordstedt’s annotation “spor. junior”.
- (121) *Coll.*? [*C. W. Nyulasy*]. 1888. Ord River [NE Western Australia] (MEL)—spec.: intact, small; labelled as “*Nyulasy*, comm. F. v. Muller”.

NITELLA INTERRUPTA A. Br. ex Leonh.—(now treated as *N. leonhardtii*).

- (122) *J. B. Wilson*. Sept. 22, [18]83. Near Port Phillip [vicinity of Geelong, Victoria] (MEL)—spec.: includes three, of which the one marked “I” seems correct while “II” and “III” appear to be different species; labelled Phyt. Mus. Melb.

- (123) L. Rodway. Nov. 1895. Pond at Sorell Creek, South Eastern Tasmania (MEL)—spec.: two fair but fragmentary; labelled Phyt. Mus. Melb.; annotated by Macdonald as “very large heads. Apparently male, very large antheridia”.
- (124) Ch. Stuart [4?]. 1850. South Port, Tasm[ania] (MEL)—spec.: two intact, fair; labelled as “unicum.... 4”, but includes two sheets; annotated by Nordstedt.

NITELLA LEPTOSTACHYS A. Br.

- (125) Rudder. Aug., 1895. Manning River [E New South Wales] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as “perhaps with Diatomeae”; annotated by Macdonald as “oospore 288 μ long”.

NITELLA LHOTZKYI (A. Br.) A. Br.—(see also *N. conglobata* var. *lhotzkyi*)

- (126) F. M. Reader. Jan. 12, 1902. In “Whitton” Swamp [lake near Warracknabeal, Victoria] (MEL)—spec.: excellent.
- (127) Dr. M[ueller] 52. Jan. 13, 1848. In Torrens [River] bei Nord [spelling?] [vicinity of Adelaide, South Australia] (MEL)—spec.: two pieces, one a good mount; labelled with German script not yet translated.
- (128) Coll.? date ? locality ? (MEL)—spec.: intact, excellent; labelled Nat. Herb. Vict. but entirely burnt except for identification; annotation by Dolsky [= Lhotzky?], burnt except the words “Bicellulatae female, ripe oog. probably heteroclemae”.

NITELLA MICROPHYLLA A. Br.

- (129) Oldf[ield] 560. date [1859?] Blackwood [River] W. Aust. [Western Australia] (MEL)—spec.: intact; labelled as “unicum”. Ref.: Nordstedt (1888: 182) cites specimen as “comm. F. Mueller 1867”, so date must be prior to 1868.

NITELLA POLYCEPHALA (A. Br.) Kütz.

- (130) Dr. Mueller 3 [?]. Oct., 1852. In flumine Yarra [River in vicinity of Melbourne, Victoria] (MEL)—spec.: intact; labelled as “Chara” and “unicum”; annotated by Nordstedt as “Wahrscheinlich *Nitella polycephala*”.
- (131) Dr. Mueller. Oct., 1852. In flumine Yarra [River in vicinity of Melbourne, Victoria] (MEL)—spec.: two intact; annotation, partly burnt, states “*Nitella gelatinosa* var. *polycephala* A. Braun 1853”.

NITELLA POLYGYRA A. Br. ex Kütz.

- (I32) *Dr. L. Preiss.* date? Nov. Holland. austro-occid [SW Australia] (MEL)—spec.: intact, though sheet is burnt on left side and packet of fragments is scorched; labelled "*Nitella polygyra* n. sp. affinis *Nitellae syncarpa*" in Braun's script.
- (I33) *G. French.* Sept., 1887. Port Phillip [vicinity of Melbourne, Victoria] (MEL)—spec.: six sheets slightly burnt; annotated by Macdonald, 1955, with numbers including variously one or more each of *N. polygyra*, *N. penicillata*, and *N. cristata*.

NITELLA REMOTA A. Br.

- (I34) *G. French* I. date? Growing in fresh water at Box Hill [vicinity of Melbourne, Victoria] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "near Port Phillip" annotated by Macdonald as "spores like [*N.*] *cristata*. Dactyls pluricellulate".

NITELLA SONDERI A. Br.

- (I35) *Rev. Dr. Woolls.* 1880. Hawksbury River [vicinity of Sydney, New South Wales] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "unicum".
- (I36) *Lewis* 6. date? Avenal [= Avenel]. Goulbourne River [Victoria] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. as "*Chara*" and as "*N. sonderi*"; annotated by Macdonald as "spore 200–230 μ long". Ref.: Nordstedt (1889: 24).

NITELLA STUARTII A. Br.

- (I37) *Coll.?* [*Stuart*]. Nov., [18]48. Nile Rivulet [E central Tasmania] (MEL)—spec.: lost?, two packets with label having only a *Chara* near *C. gymnopitys*—rdw.
- (I38) *C. Stuart.* date? Tasmania (MEL)—spec.: intact; labelled as "13" by Mueller.

NITELLA SUBTILISSIMA A. Br.

- (I39) *Drummond.* date? W.A. [= Western Australia] (MEL)—spec.: intact; labelled Bot. Mus. Melb. Note: mixed with *Lamprothamnium*—rdw.

NITELLA TASMANICA F. Muell. ex A. Br.

- (I40) *Ch. Stuart* 218. Dec., 1848. In aquis fluentis . . . ad fluvium . . . South Esk River [vicinity of Launceston, Tasmania] (MEL)—spec.: intact; labelled in small script (*Stuart's*) and annotated in bold script (*Nordstedt's*).

- (141) *P. Eckert*. [18]83. Wimmera [region of Wimmera R., W Victoria] (MEL)—spec.: intact.
- (142) [*Ch. Stuart*]. [18]49. South Esk River w. [= west of ?] Perth, [Tasmania] (MEL)—spec.: intact; labelled “Ferd. v. Muller”. Note: a number 218 has been inserted in this folder. It is conceivable that this is a duplicate of that collection.

NITELLA TRICUSPIS A. Br. (now treated as *N. dregeana*)

- (143) *Ch. W. Birch*. 1892. White Water, near Mount Albion. N. . . . Austr. [at head of Tate River, c. 65 miles E of Cairns, Queensland] (MEL)—spec.: a tiny scrap on mica slide; labelled by Nordstedt. Note: writing looks like “Bird”, but collector was certainly Birch.

NITELLA TUMIDA Nordst.

- (144) *A. T. Vogan*. date ? In heissen* Salzquellen am Mulligan River [i.e., in a hot saltwater spring bore on the Mulligan River, SW Queensland] (MEL)—spec.: intact; labelled Phyt. Mus. Melb. det. O. Nordstedt.

NITELLA sp.

- (145) *Miss Landsborough*. date ? Towomba [= Toowoomba, SE Queensland] (MEL)—spec.: intact, and includes a No. 6 and a No. 11 (fair condition); labelled Phyt. Mus. Melb.; annotated by Macdonald, 1955, as “pluricellulate, perhaps *N. cristata*”.
- (146) *Oldfield* 7. date ? [March, 1859]. Wet places near the Moore River [Western Australia, c. 50 miles N of Perth] (MEL)—spec.: fragments; labelled in pencil notes, also a “unicum” and “7” in ink; annotated by Macdonald as “bicellulate?”.
- (147) *Persieh* 535. 1882. Endeavour River [near Cooktown, Queensland] (MEL)—spec.: two wads, labelled as “*Nitella* sp., sp. nov. ad *N. tenuissima* accedens”; annotation by Nordstedt is scorched, but states “*Nitella* fortasse nov. sp. ad *N. tenuissima* accedens”.
- (148) *Mrs. Gribble*. Oct [Nov.?] 10, 1895. Mount Bellenden Ker [c. 40 miles S of Cairns, Queensland] (MEL)—spec.: intact, but mere scrap; labelled Phyt. Mus. Melb. as “*Nitella* nov. sp.” [by whom?]; annotated by Nordstedt as “diarthrodactyla, homoeophylla, dioica, gymnocarpa?, fructificatione nulla in dionera [?] foliis femina, gracilis”.

* Not clearly written; possibly “kleinen”—rdw. Nordstedt read it as “hot”.

- (149) *Leichhardt*. Nov. 25, [18]43. In the creek, running water, near Archers [i.e., Mr. Archer's Creek, at Durundur (fide Blake, 1955: 18) now the vicinity of Woollooga, c. 3 miles NW of Gympie, Queensland] (MEL)—spec.: intact, fair wad.

TOLYPELLA GLOMERATA (Desv. in Lois.) Leonh.—(see No. 5)

After the manuscript was completed, the junior author located a number of additional specimens which had also survived the fire. These were from the National Herbarium of New South Wales, Sydney. The data were transmitted to the senior writer, edited, and are added below without his further verification. They are to be returned to the Sydney herbarium.

CHARA FRAGILIS Desv.

- (150) *R. Gunn*. Dec., 1840. Derwent River, Tasmania (NSW)—spec.: missing; labelled Herb. NSW; annotated "*Chara fragilis* Desv." by ?.
- (151) *R. Gunn*. Dec. 18, [18]40. Derwent [River] above New Norfolk [Tasmania] (NSW)—spec.: small piece in slit paper; annotated "*R. Gunn, Tas.*" by ?.
- (151A) *R. C. Gunn*. date? locality? (NSW)—spec.: intact; labelled "*Ex Herb. Hook.—7. Ch. fragilis.*".

CHARA GYMNOPITYS A. Br.

- (152) *R. C. Gunn*. date? Tasmania (NSW)—spec.: intact; labelled "[C.] *gymnopitys* A. Br." by ?, "*Ex Herb. Hook[er]*", and "*Herb. Archer.*".
- (153) *R. Gunn*. date? Tasmania (NSW)—spec.: intact; labelled "*R. Gunn*" in corner of sheet, with data on another duplicate; annotated in broad script.
- (154) *R. Gunn* 1568 [or 1560]. Jan. 20, 1843. Cimitiere Pl., George Town, Tasmania (NSW)—spec.: intact; label in two scripts, partly burnt.
- (155) *R. Gunn* 1573. Dec. 18, [18]40. Derwent River, Glen Leith, Tasmania (NSW)—spec.: intact, good, fertile.
- (156) *R. Gunn* 1568. Dec. 21, [18]44. South Esk [River], Perth, Tasmania (NSW)—spec.: intact.

CHARA LEPTOPITYS A. Br.

- (157) *Coll.*? date? locality? (MEL?)—spec.: intact, good fertile material; label lost. Note: adhering to scorched sheet marked ". . . [Ch] *ara leptopitys*", marked "*unicum*", and in heavy brown paper species cover of kind sent from (MEL).

- (158) R. C. Gunn. date ? Tasmania (NSW)—spec.: a loose wad, rather scorched; labelled "Ex Herb. Hook., Hab. Tasmania"; annotated "*Chara leptopitys* A. Br." by ?, and marked "4 *Ch. leptopitys*" on the "Herb. Archer" label.

CHARA MOLLUSCA A. Br.

- (159) R. Gunn. Jan., 1841. Lake St. Clair, Tasmania (NSW)—spec.: intact, small wad; annotated as "Seen by J. Groves (16-10-30)".

CHARA MYRIOPHYLLA F. Muell. ex A. Br.

- (160) R. Gunn. date ? R[iver] Derwent, Tasmania (NSW)—spec.: intact, but scorched; annotated "*Chara myriophylla* F. v. M.", and also as "Seen by J. Groves 16-10-30".
- (161) R. Gunn 1572. Feb. 13, [18]45. Source of the Derwent, Lake St. Clair [Tasmania] (NSW)—spec.: largely intact, includes one wad and three small bits; annotated as "growing in mud in source of Derwent . . ."
- (162) R. Gunn. date ? Tas[mania] (NSW)—spec.: half burnt, good material; label mostly burnt, but folder marked "*C. myriophylla*" by Macdonald.
- (163) R. Gunn 1560 [1568?]. Jan. 20, [18]43. Cimitiere Plains, George Town, Tasmania (NSW)—spec.: largely intact, a large wad; labelled on a separate paper as "In brackish water with Ruppia" in a fine script.
- (164) R. Gunn 1568 [or 1560?]. Oct. 23, [18]44. Brickhole, Cimitiere Pl. [Georgetown, Tasmania] (NSW)—spec.: lost; label loose in folder with No. 165.
- (165) R. Gunn 1568 [or 1560?]. Jan. 1, [18]45. Distillery Creek, Launceston [Tasmania] (NSW)—spec.: slightly scorched.
- (166) R. C. Gunn. date ? locality ? [doubtless Tasmania] (NSW)—spec.: loose wad burnt at one end; labelled Herb. Archer and "Ex Herb. Hook."

NITELLA GELATINOSA A. Br.

- (167) R. C. Gunn. date ? locality ? (NSW)—spec.: one small piece; labelled Herb. Archer and "Ex Herb. Hook."

NITELLA GLOEOSTACHYS A. Br.

- (168) R. Gunn 1566. Dec. 18, [18]40. Derwent [River], Glen Leith [Tasmania] (NSW)—spec.: intact, including a loose wad (see No. 170).
- (169) Coll.? [R. Gunn ?]. Nov. 4, [18]44. Formosa [vicinity of Cressy, Tasmania] (NSW)—spec.: intact. Note: after fire, found in same folder as No. 168.

(170) Coll.? [R. Gunn ?]. March [May ?] 20, [18]42. S[outh] Esk [River], Launceston [, Tasmania] (NSW)—spec.: missing; label unattached, possibly belonging with the loose wad in No. 168.

(171) R. C. Gunn. date ? locality ? [Tasmania] (NSW)—spec.: large scraps with fertile heads; labelled Herb. Archer and "Ex Herb. Hook."; annotated as var. *major* by Macdonald.

NITELLA GUNNII A. Br.

(172) R. Gunn. Dec. 21, [18]44. South Esk [River], Perth, Tasmania (NSW)—spec.: intact, with dense globular whorls; label partly burnt; annotated "*Nitella Gunnii*" in large script.

NITELLA HOOKERI A. Br.

(173) R. Gunn. Jan. 4, [18]43. York Town, Tasmania (NSW)—spec.: large dark wad, somewhat scorched.

(174) R. C. Gunn. date ? locality ? [Tasmania ?] (NSW)—spec.: few small scraps on back of a blank Herb. Archer label; two labels with conflicting data, one with "Hab. Tasmania. Coll. R. C. Gunn" and the other "*Nitella Hookeri* var. *Tasmanica*". The previous data, obviously cut away from one label, states "*Nitella Hookeri* A. Br., Kerguelen Land". Note: the "Kerguelen" label probably refers to an earlier collection. Critical examination of the specimen is needed to determine which label is correct.

(175) R. C. Gunn. date ? Tasmania (NSW)—spec.: half burnt, mainly sterile scraps; labelled "Ex Herb. Hook."; annotated "*Chara Hookeri*" by ?.

(176) R. C. Gunn 1567. Dec. 23, [18]45. Penquite [a NE suburb area of Launceston, Tasmania] (NSW)—spec.: partly burnt, probably sterile.

NITELLA sp.

(177) Coll.? [R. C. Gunn?]. Dec. 22 [25?], [18]44. Coquet [Loquis ?] Rivulet, St. Patricks [River?], Tas[mania] (NSW)—spec.: adhering to scrap of paper partly burnt, label partly burnt.

(178) Coll.? [R. C. Gunn ?]. Dec. 2, [18]48. Poo's of water, Formosa [vicinity of Cressy, Tasmania] (NSW)—spec.: three somewhat burnt sheets of which two are mixed *Chara* and *Nitella*.

(179) Coll.? [R. C. Gunn ?]. Feb. 1, [18]48. George Town Rivulet, Tasmania (NSW)—spec.: large wad, scorched.

(180) R. Gunn. Sept. 30. [18]47. Tasmania (NSW)—spec.: few small scraps of mixed *Nitella* or *Chara* and a phanerogam.

List of Collectors

W. Bäuerlen, No. 71?; Ch. Weldon Birch, No. 27, 68, 143; D. Boyle, No. 30; Rev. J. Bufton, No. 78; J. Cameron, No. 4; W. H. Cusack,* No. 20, 37A, 76; J. Drummond, No. 66, 139; J. P. Eckert, No. 141; W. V. Fitzgerald, No. 10; G. French, No. 133, 134; W. P. Fullagar, No. 15?; Mrs. Gribble, No. 148; R. C. Gunn, No. 150–180; Mrs. Martha Heal, No. 3; R. Helms, No. 56, 92; Miss Landsborough, No. 145; El. Leary, No. 19, 21, 54, 90, 98, 120; Leichhardt, No. 149; Lewis, No. 73, 136; Dr. Ferdinand von Mueller, No. 1?, 2?, 6, 7, 8, 12?, 13?, 14?, 16?, 32, 36, 39, 51, 52, 55, 58?, 65, 70, 74, 93, 105, 106, 110, 127, 130, 131; C. T. Musson, No. 80; C. W. Nyulasy, No. 24, 42?, 121?; A. Oldfield, No. 33, 75, 129, 146; E. Palmer, No. 41, 119; W. A. Persieh, No. 69, 147; L. Preiss, No. 50, 132; F. M. Reader, No. 18, 45, 49, 100, 101, 108, 109, 115, 126; L. Rodway, No. 123; A. Rudder, No. 125; Miss W. J. Smith, No. 89, Ch. Stuart, No. 9?, 26?, 28, 29?, 35, 37, 38?, 43, 44, 46, 47?, 48?, 62, 81, 82, 83, 84, 85, 88, 91, 94, 95, 102, 103, 104, 111, 112?, 113, 114, 116, 117?, 124, 137, 138, 140, 142; D. Sullivan, No. 77, 118; A. T. Vogan, No. 53, 144; C. Walter, No. 40; Miss Warburton, No. 63; Th. Wier, No. 25; J. F. Wilcox, No. 86; C. Wilhelmi, No. 34; J. (also P.) Bracebridge Wilson, No. 5, 31?, 64, 122; Rev. Dr. W. Woolls, No. 17, 23, 79, 135.

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*Occasionally spelt "CUSSACK" on the labels.